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Community Development and Community Resilience: An Integrative Approach

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Throughout history, communities and civilizations have sought to enhance the quality of community life and the well-being of its people. However, more recently there has been greater interest in attending to the details of community development by capitalizing on the improved ability to capture community well-being and successes scientifically. That interest invites greater attention to the development of indicators that can quantify those qualities of life that lead to strong and healthy communities. The selection of meaningful indicators is dependent upon several factors including a process that stimulates meaningful involvement of community stakeholders, but the single most important is the identification of an underlying model to guide the work. Indicators do not have meaning in themselves. For these measures to provide a coherent assessment of the community, an integrative approach to understanding what constitutes a healthy and strong community in a dynamic environment is required. A resilience perspective serves that purpose and provides a framework that is broad, neutral, and conceptually strong enough to structure development of significant sets of indicators. Exemplary community indicator processes across the nation, particularly recent efforts in the Phoenix, Arizona region, provide evidence supporting the value of indicator development for community building.

Keywords: *community resilience, quality of life, community indicators, analysis of social systems*

> *"Growth" has been a buzzword in our society. More is better. But are more people, more highways, more factories, more consumption intrinsically better? Cancer, too, is growth - growth out of step with the body, the larger system it depends on. A co-intelligent community, conscious of its internal and external interconnectedness, would not seek endless growth of its material "standard of living." Rather, it would seek sustainable development of its "quality of life," as manifested in the welfare of its members, the vitality of its culture and the health of the natural environment in which it was embedded.*
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> *- From: http://www.co-intelligence.org/S-sustainableSeattle.html*

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Overview: Resilience, Community Indicators, and Community Development

Throughout history, communities and civilizations have sought to enhance the quality of community life and the well-being of its people. However, more recently we have seen greater interest in attending to the details of community development by capitalizing on the improved ability to define, measure and extend community well-being and successes to all residents. With that interest has come attention to the development of indicators of the threat of loss and progress in furthering well-being in the community. In this article an integrative model is proposed for the identification and use of community indicators to quantify those qualities of life that lead to strong and healthy communities.

Communities are vibrant, ever-changing, and challenging social worlds, a thoughtfully crafted comprehensive community index can inform us about the direction, negative or positive, of growth and change in those communities. A glance into the community indicator literature uncovers a formidable list of attempts by organizations and communities to tackle this daunting task. Each attempt aims to capture a picture of the functioning and status of their community, reducing the complex phenomenon of community life into a few quantifiable mileposts for the purposes of evaluation and informing policy and programming. As with any measure, an indicator must outline the target phenomenon or condition and the specific goals and desired outcomes for which it is being developed. The need to link community vision, goals, outcomes and indicators within a community resilience framework requires attention to processes as well as outcomes.

Cities are vibrant and dynamic and the measures used to capture them should be able to capture the breath and movement of a city. A snapshot of any scene can provide a number of important details about what may be happening, such as the race, gender, or approximate age of the participants. However, it does not tell a story of people may have been or where they are heading. Longitudinal research is an essential component of any community indicator program. The positive impact of programming and developments may not be seen in a matter of weeks, or certainly not in a one time assessment of life in a community.

A community that is building capacity is one that plans for positive growth as well as decline, integrates economic and social goals, and fosters connections across diverse groups within its borders. For these lofty ambitions to be more than pipe dreams, the community needs methods to chart its progress on social and economic goals using real data. The 21st century metropolis that stays tuned in to a range of risk and resource factors rather than relying solely on a model of risk not only bucks the current and long-standing trends but is one that is moving toward a model of governance that provides a greater capacity to sustain quality of life for its members.

The selection of meaningful community indicators is dependent upon several factors, but the single most important is the identification of an underlying model to guide the work. As Kurt Lewin once admonished, “Nothing is as practical as good theory.” Indicators do not have meaning in themselves. In order for these measures to provide a coherent assessment of the community, an integrative approach to understanding what constitutes a healthy and strong community needs to be selected. Otherwise, the data that arise from a set of indicators is more likely to be subject to interpretative whim and fancy. A strong model of what is important for our community is essential in order to correctly focus and interpret the data to judge the extent and even the direction of positive change resulting from ambitious community programs.

Resilience has been chosen as the key construct with which to build a model that informs the choices of community indicators. To inquire about the resilience is to ask two fundamental questions about human adaptation. First is recovery: how well do people bounce back and recover fully from challenge (Masten, 2001; Rutter, 1987)? People who are resilient display a greater capacity to quickly regain equilibrium physiologically, psychologically, and socially following stressful events. Second and equally important is sustainability: the capacity to continue forward in the face of adversity (Bonanno, 2004). To address this aspect of resilience it must be asked, how well do people sustain health and meaningful positive engagement within a dynamic and challenging environment? Healthy communities are those that confer these capacities for resilience to their constituents.

A community's resilience is best understood by applying ecological principles to the analysis of social systems in terms of these two defining features of resilience: recovery and sustainability. With a focus on recovery, Black and Hughes defined resilience as "the ability of systems to cope with shocks and bounce back" (Black & Hughes, 2001, p. 16). Another definition Fiksel offered in terms of sustainability is "the capacity of a system to tolerate disturbances while retaining its structure and function" (quoted from Fiksel, 2006, p. 16). Folke et al. (2002, p. 438) integrated these two properties when they identified three elements of resilience: (1) "the magnitude of shock that the system can absorb and remain within a given state;" (2) "the degree to which the system is capable of self-organization;" and (3) "the degree to which the system can build capacity for learning and adaptation."

In 1987, the U.N. World Commission on Environment and Development (also known as the "Brundtland Commission") defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meets their own needs" (Sustainable Pittsburgh, 2004, p. 82). Folke et al. (2002, p. 439) point out, when resilience is synthesized in the context of sustainable development, at least three general policy recommendations can be drawn: (1) "the first level emphasizes the importance of policy that highlights interrelationships between the biosphere and the prosperous development of society;" (2) "the second stresses the necessity of policy to create space for flexible and innovative collaboration towards sustainability;" and (3) "the third suggests a few policy directions for how to operationalize sustainability in the context of social-ecological resilience." The authors of this study agree with Hancock (2000): A healthy community must also perforce be a resilient community, one that has the systems of governance and social capital needed to rebound from difficult times and sustain that which is most positive about its identity for its current and future inhabitants.

In sum, a resilience portfolio can help inoculate communities against potential threats and crises, but it requires new perspectives, actions and measures. Operationally this means a focus on identifying, conserving and investing in the human, social, intellectual, and physical capital, rather than expending large parts of that capital and energy of its leadership in short term, narrow programs, activities and services (Churchill, 2003). Investment in valid indicators of social progress in keeping with a resilience perspective provides the kind of feedback needed to build more vibrant and sustainable communities. By taking the broad view of human and community health, and focusing on qualities that promote resilience, the task of identifying yardsticks for community resilience becomes a challenging one. However daunting the complexities that underlie this approach, to attempt anything less would be to shortchange community potential, and diminish chances of building on the positive forces of sustainable growth and development.

II. Indicators in Action

According to The World Health Organization (WHO), a social indicator is a "variable, which helps to measure change" (as cited in Boothroyd & Eberle, 2000). Innes (1990) defines an indicator as "simply a set of rules for gathering and organizing data so they can be assigned meaning."[1] To enrich definition, analogies are often used to illustrate the concept. For example, a report from the Sustainable Seattle project likens indicators to "gauges and dials of an aircraft's instrument panel" (cited in Phillips, 2005). This is a metaphor with meaning for the Seattle community, the home of Boeing and one of greatest concentrations of engineers in the United States. Review of the substantial community indicators literature shows that many analogies have been applied to clarify the meaning of indicators, and that indicators have been used to serve different overlapping primary functions shown in Table 1 and including description, simplification, measurement, trend identification, clarification, communication, and catalyst for action (Phillips, 2005). Indicators also have great practical power. As noted in Health in a New Key, "what gets measured gets done" (St. Luke's Health Initiatives, 2003, p. 17). Since much of what has been measured to date focuses on risk rather than resilience, targets for action are often reactive and defensive, designed to avoid deeper problems rather than increase capacities.

Table 1. Functions of Community Indicators

Function	Description	Answers the question…
Description	Describe conditions or problems Increase general understanding	'What are things like?'
Simplification	Simplify complexity; provide a representative picture with significance extending to a larger phenomena of interest	'What's the big picture?'
Measurement	Measure characteristics of quality of life; measure performance of activities or services	'How much?'
Trend Identification	Establish baseline data; identify trends or patterns; show direction, improvement, disintegration, plateaus Two types:	
	1) Past-orientation. Indicators are chosen in light of their 'historical trend-identification properties' (MacLaren 1996, p.9) i.e. showing how dimensions of a identified phenomenon have been changing;	'How did we do?'
	2) Future-orientation. The indicator is a 'forward-looking instrument' (MacLaren 1996, p.9), used as a predictive, forecasting device.	'Where are we headed?'
Clarification	Clarify analytical issues or long-term goals; highlight areas of concern or improvement	'What's most important?'
Communication	Translate data into terms understandable by wide range of users	'How do we explain…?'
Catalyst for Action	Stimulate public, stakeholder and political awareness, as well as interest and will to work towards change	'What next?'

Indicators of community life derive in part from the work of social scientists on the broader domain of social indicators. This work, begun in the later half of the past century, focused on the development of measures of social progress that would parallel the gathering of data to provide "economic indicators" of the vitality of regions of the country. It was evident then, and subsequently reinforced by numerous observations of the uneven growth and decay of quality of life even in economically flourishing communities, that a balanced approach is needed to charting progress in regional community development (Swain, 2002). Indeed, the founding fathers acknowledged the importance of gathering data on the social condition of our nation by including in the United States Constitution the requirement that the government conduct a periodic census of its people. Although the original U.S. Census of 1790 consisted of a mere 6 questions about the number race and age of people, living in each household, the Census has evolved as the most comprehensive national data set detailing the nation's demographic, social, and economic conditions and change. Social researchers have relied heavily on these data to interpret quality of life trends, progress, and challenges of the society.

Of interest as well has been the concern for inclusion of indicators of quality of life that include the perspectives of the community members themselves as well as urban planners and social scientists. Researchers have constructed inventories to examine the individual's perceptions of their own health and well-being (Andrews & Withey, 1976; Campbell & Converse, 1972). In these efforts, individuals are asked to rate their well-being and satisfaction with their own lives. Interestingly, this work uncovered distinct differences between perceptions of quality of life as defined by the subject in contrast to those defined by social indicators. The disconnect between the two sets of findings suggests the need to incorporate ways of estimating both the social and psychological well-being with community indicators.

One of the major advancements in field of social indicators has been the study of environmental issues. Cobb & Rixford (1998) highlight that this area of emphasis has made extraordinary advances in theory development. The ecological framework has advanced the indicator movement beyond solely descriptive statistics to examining theoretical frameworks of change and developing a future orientation. By looking to the future, environmental indicators can identify the impact of current systems and practices and develop alternative means for enhancing future outcomes in the ecosystem.

Many Types of Indicators. The number of indigenous community indicator programs has grown in recent decades. Dluhy & Swartz (2006) identified over 200 community based indicator projects in the U.S. alone. The recent community indicators movement has employed largely bottom-up planning, where each community has set its own goals and monitored its own changes. This stands in contrast to previous efforts primarily by governmental bodies to examine national trends. Indeed democratic theory dictates that to some extent the desired outcomes and the important dimensions to evaluate will vary across communities. However, one key limitation of a bottom up community-based approach is the lack of a unified conceptual framework with which communities of location and interest can work together for the benefit of the whole region. An effective response to this limitation would be a universal conceptual framework with the flexibility to adapt to take local characteristics and circumstances into account.

Ongoing social and community indicator programs. There are a number of U.S. communities that are setting the pace for developing community indicators of resilient processes and incorporating those indicators into on-going community building efforts. Table 2 below describes some of the leaders in this emerging field.

Table 2: Examples of Exemplary U.S. Community Indicator Projects

Sustainable Pittsburgh

Committed to affecting regional decision-making processes so that regard for sustainability in economic, environmental, and social ventures alike is incorporated, the nonprofit organization Sustainable Pittsburgh developed and produced a set of performance indicators in 2002. This set of indicators proved to be only the beginning for Sustainable Pittsburgh, for they have led the organization to develop Affiliate Network Topic Teams, through which action items are developed by participating community members in order to move the region closer to its goals of creating a sustainable environment and economy, and sustainable system of social equity. For more information, log onto www.sustainablepittsburgh.org.

Community Indicators Initiative of Spokane

Harnessing the resources of partners like Eastern Washington University, the City of Spokane, and the Spokane County United Way, the Community Indicators Initiative of Spokane, Washington has been able to engage its community toward the lofty goal of democratizing data in the name of improving communities. From these indicators, which culminated in a comprehensive report in 2005, local organizations and community-based groups are able to glean data for making organizational and community decisions. For more information, log onto www.communityindicators.ewu.edu.

Jacksonville Community Council, Inc.

The Jacksonville Community Council, Inc. (JCCI) is a pioneer in the field of community indicators. For more than twenty years, the JCCI has collected and disseminated information on the quality of life in the Jacksonville area of Florida by utilizing a comprehensive list of more than 100 indicators in nine areas of interest, which include arts and culture, education, public safety, and health. The JCCI—comprised of expert staff and citizen volunteers—is able to produce comprehensive reports, for use by government, business leaders, and other citizens in making decisions and taking action to improve the community's state of being. For more information, log onto www.jcci.org.

Sustainable Seattle

For more than fifteen years, the nonprofit organization Sustainable Seattle has sought to enhance the quality of life in the Seattle area by providing communities with information to make choices that will lead to a more sustainable future. As part of this effort, in the mid-1990s, the organization began the process of developing a set of regional indicators through an inclusive process of community participation that drew on citizens' values and goals. While pleased with early efforts, which led to the publication of multiple reports of indicators for community use, Sustainable Seattle reassessed its indicator project in the early part of the 21st century, with an eye toward making the product more effective and beneficial to the community. This has led the organization to develop neighborhood-based indicators (to complement the ongoing system of regional indicators), and to develop a comprehensive plan for moving the indicators from assessment to action to garner sustainability for the Seattle area in the long term. For more information, log onto www.sustainableseattle.org.

Truckee Meadows Tomorrow

Based in Reno, Nevada, the nonprofit organization Truckee Meadows Tomorrow is dedicated to providing information that will lead decision-makers to create positive change within communities. Working with a set of 33 indicators of the quality of life in northern Nevada, Truckee Meadows Tomorrow publishes an annual Community Well-being Report, which highlights not only the area's current state of being, but also policies and programs that are actively working toward counteracting negative trends in the community. But their work does not end there. They actively encourage community members to take a personal interest in changing their community's status by personally adopting an indicator as a tool to drive advocacy and service efforts, by participating in their online forum to discuss issues with like-minded community members, and by joining their organization. For more information, log onto www.truckeemeadowstomorrow.org.

Table 2. Cont'd.

City of Santa Monica
In the mid-1990s, the City of Santa Monica heeded the community's concern that their current progress might be coming at the price of future generations' well-being, by developing and adopting a plan to base citywide decisions on the premise of sustainability. In short, they keep an eye to the future when making decisions about the present. The City of Santa Monica does so through the assistance of its Sustainable City Plan—a set of goals and indicators for all segments of the community that were developed by city staffers and a group of community stakeholders who operated under an agreed-upon set of ten guiding principles of sustainability. This plan for the City of Santa Monica has over time become embedded within the fabric of its decision-making processes, to the extent that the city finds itself not only meeting its targets, but (in many instances) exceeding them. For more information, log onto www.smgov.net/epd/scp/index.htm.
Boston Indicators
The Boston Foundation, Greater Boston's community foundation—grant maker, partner in philanthropy, key convener, and civic leader—coordinates the Boston Indicators Project in partnership with the City of Boston and the Metropolitan Area Planning Council. The Project relies on the expertise of hundreds of stakeholders gathered in multiple convenings to frame its conclusions, and draws data from the wealth of information and research generated by the region's excellent public agencies, civic institutions, think tanks, and community-based organizations. For more information, log onto www.bostonindicators.com

Perhaps because of its relative longevity, the Jacksonville Community Council, Inc. (JCCI) is repeatedly cited as one of the leading efforts and was highlighted in the well known book*, Smart Communities: How Citizens and Local Leaders Can Use Strategic Thinking to Build a Brighter Future*, by Suzanne Morse (2004). JCCI was established in 1975 and has consistently worked to increase the dialogue of Jacksonville's current state and functioning and the future it hopes to attain for itself. Their mission statement is to engage "diverse citizens in open dialogue, research, consensus building and leadership development to improve the quality of life and build a better community in Northeast Florida and beyond" (as stated on their website http://www.jcci.org/about/missionstatement.aspx). As is the case with many other indicator mission statements, the leaders of this nonpartisan civic organization proclaim the importance of indicators in opening a civic dialogue on the current status and functioning of their communities.

Although each of the cases mentioned in Table 2 has adopted different approaches, they share important common elements. To begin, they are each fully collaborative ventures, incorporating ideas and resources from many sectors of the community including governments, universities, nonprofits, private firms, and the general citizenry. They have all developed extensive processes to help derive and use key indicators. A major part of the process work focuses on stimulating and sustaining genuine grass-roots participation, while at the same time including various community "experts" and policy makers in the processes. The result is that while indicators and goals chosen differ by community, there is substantial overlap of concepts and measures. In addition, these examples show significant signs of sustainability and impact on community dialogue, and, in some cases, policy actions.

Two potential flaws are also identifiable in looking at these examples. The first is that they often identify many indicators which raise questions about community priorities and focus. The second is that it is difficult to determine policy and theoretical accountability for some indicators. If the community group finds indicator(s) moving in an undesirable direction they must determine why the change and who is likely to respond. Depending on the indicator, this can be a difficult assignment.

The Phoenix Citistate as a new urban laboratory. The many diverse communities within the booming Phoenix region represent natural experiments for understanding and measuring resilience in response to the major challenges of the future. Phoenix and its surrounding cities and suburbs are growing together, with great degrees of economic, social, and physical interdependence, hence the designation "Citistate" (Peirce, Johnson & Hall, 1993).

Some of these Citistate issues include the impact of increased immigration and diversity, scarcity of resources and environmental erosion, decreasing emphasis on community in exchange for sprawl and individuation (characteristics for which the Wild West has long been known). According to the U.S. Census, Phoenix is the fastest growing American metropolitan region of the past decade. The challenges it faces are similar to issues that other countries and communities across the U.S. will increasingly face if they are not already. This is the fundamental paradox: how do you build a community within a city of transients (Long, 1991)?

The issues of immigration and diversity are faced every day in Phoenix and they will only continue to demand attention in communities around the globe. As a border state, Arizona faces the unique challenges of being at the front end of the changing face of modern forms of immigration (e.g. "illegal immigration" and human trafficking) and rapid growth. With the substantial improvements in transportation and communication over the last decades, residents of Phoenix often encounter next door neighbors and people from around the globe. In an increasingly diverse society, there are even greater cultural gaps between the individuals and groups that are coming in contact today than yesterday. How communities respond to this diversity will have short- and long-term implications for the future of any community. The role of government and public policy in these trajectories are critical.

In addition, environmental degradation and the impact of rapid growth and expansion are other issues in which Phoenix provides a model laboratory. Given the ongoing efforts to build and expand within the desert landscape, Phoenix faces unique challenges that are global issues for the long-term. The limitations of existing natural resources place a strain on the environmental impact of growth and development. Increased driving times and the reliance on traditional forms of energy have raised levels of pollution which undeniably impact health and well-being. The social characteristics and ramifications of such growth are also apparent. Changes in daily interactions and the goals or expectations of neighbors and communities are of increasing interest to social scientists and of concern to city planners. The impacts of growth on individual well-being and health are only beginning to be realized.

Within this context, there is clear need to cultivate vision for a sustainable and resilient future. Some efforts such as the Phoenix Futures Forum have been launched and found partially successful in developing greater public involvement in developing goals, strategies and progress measures for the region's future (Hall & Weschler, 2005). In addition, Metro Phoenix has had significant experiments in the large scale collection of data of great potential for local public policy and an informed citizenry. The now defunct Data Network for Human Services was a massive effort to chart cost and outcomes of wide range of public services. Based on periodic questionnaire data from local service delivery agencies for over a decade, the effort eventually became too costly and was subject to increasing criticism about its utility and cost effectiveness (Hall, Jones, Snook, & Springer, 1998).

A current effort involves the development of Arizona Indicators. Similar in design to Boston Indicators, the Arizona Indicators Project aims to offer a one-stop data research tool that tracks Arizona's economic, social and environmental trajectory. In 2007, Arizona State University began this initiative to produce community indicators. A series of initial projects are the first steps toward producing a comprehensive set of indicators that are maintained and updated on an ongoing basis. These are initial efforts, with enhancements and improvements intended to be developed over time. Foreshadowing the importance of the effort, production of the first set of indicators was coordinated by the Office of the President at ASU. Broad-ranging indicators, with a geographic focus on the Phoenix area, were produced by experts throughout the university. The project has evolved into a collaboration among A.S.U., the Arizona Republic newspaper, the State Department of Commerce, and the Arizona Community Foundation. Indicators will be updated regularly and are available to all residents and interested parties by simply checking the project's web site dashboard (www.Arizonaindicators.org).

These are admirable attempts to infuse the Metro Phoenix public policy process with greater rationality and provide access to important community information, but like many other community data collection examples these falter because they lack a unifying framework. Questions about what is most important, how indicators are connected or not related, are minimized or sometimes avoided entirely as data are collected. What differentiates large quality of life or community betterment data collection efforts from most of the "Exemplary Cases" listed in Table 2 is degree of conceptual clarity and focus. In addition, most exemplary cases have evolved from a heavily collaborative, sustained process including grass roots dialogue and involvement.

A more targeted approach to developing community resilience and appropriate indicators is now underway in Phoenix as a part of new and significant effort called Health In a New Key (HNK). Developed by St. Luke's Health Initiatives, an Arizona Community Foundation, HNK is a five year, multi-million dollar program that blends the concept of resilience with strength-based community development (Kretzman & McKnight, 1993). This initiative awards community organizations that develop new partnerships to implement resilience-based interventions that focus on assets, not deficits. The effort is defined as "a way of identifying, framing and responding to issues that focuses first on existing strengths and assets…and avoids the pervasive culture and model of deficits and needs" (St. Luke's Health Initiatives, 2008). This innovative program marks an important step in providing funds to move beyond threat and response paradigms to funding resilience and assets-based research and interventions that can be sustained within communities.

As a part of the overall deployment of HNK, Arizona State University's Resilience Solutions Group (RSG) is engaged in designing community tools for developing resilience indicators including a process for generating stakeholder involvement in the selection of the best Community Resilience indicators. A community resilience indicators Workbook (Zautra & Hall, 2008) is being piloted among communities of the Phoenix Citistate presently and is organized around workshops that cover several domains of community life, including critical resilience capacity areas of Social Domain, Physical Infrastructure, Civic Infrastructure, Economic Domain, Environmental Domain, Human Development, and Health and Well being.

Although this work is in progress and it is too early to formally evaluate progress of the HNK effort, it is clear that this work on asset-based strategic planning, community development, and indicator based evaluation is changing the way in which many local organizations are thinking about their mission, their connection to other community entities and policies, and critical mission determinants such as the difference between "human development" and "human services" in the traditional sense. Early "emerging lessons" reported in a new article (Hughes, 2008) about HNK underscore this change:

1. Resilience is enhanced by connecting civic and political institutions
2. Resilience is enhanced by community wells of information, services, and social connections
3. Resilience is enhanced by leveraging local culture
4. Resilience is enhanced through strong feedback loops

These notable community information experiments and processes have great potential for theory and practice. A logical first step toward achieving that potential involves reviewing these cases with an eye to understanding how they may collectively reflect on exiting theories, definitions, hypotheses and policies that swirl around the question of the place of community resilience in community development. That is the objective of the final section of this article.

Analysis and Implications

Healthy Communities

A take-off point for the development of community resilience indicators anywhere is an understanding of the operational meaning of community. Community has many definitions, and debate among social scientists and philosophers on the fine points of what a community is, and is not, will likely carry on indefinitely. Nevertheless, there are many common threads with which a working definition can be woven together useful for the purposes of informing the development of Community Resilience Index (CRI). In essence a community is defined by the presence of sustained and substantial positive social interaction among people who share common ground. Past definitions focused on the patterns of social engagement bounded by geographic areas such a neighborhoods, towns, and school districts, or what Black and Hughes (2001) refer to as "communities of location." In addition, social networks of people with shared identities and purposes define what Black and Hughes (2001) refer to as "communities of interest." These clusters of people are bounded by common values rather than by geography, but are no less important in our understanding of community. A focus on community, then, embraces both the shared geographic and the conceptual spaces that constitute what social scientists have referred to as "weak ties" (Granovetter, 1973). These webs of social interconnection determine the extent of civic engagement and social capital. From the perspective of resilience, a key domain of interest is how communities further the capacities of their constituents to develop and sustain well-being, and partner with neighboring communities of location and interest to further the aims of the whole region.

The definition of health as the absence of disease has held sway in public policy debates for the greater part of the 20th Century. This narrow view has been gradually overtaken by a broad and more comprehensive approach that includes the capacity for quality of life as well as the absence of pathology[1]. In terms of physical health this transition has led to greater attention to functional capacity and less on prevalence estimates of "caseness." In mental health a similar transformation has taken place in referring to disablement as the criterion for poor mental health rather than a diagnosis of mental disorder (Diagnostic and Statistical Manual (DSM-IV): APA, 1994).

Inquiries into the processes that allow for resilience in physical and mental health lead in this study to a deeper appreciation of human capacities than are found in the standard paradigms that underlie the clinical research and practice. Paradigms within the clinical sciences have focused so much on revealing hidden pathologies that the natural capacities of people, even those who are ill, to resolve problems, bounce back from adversity, find, and sustain energy in the pursuit of life's goals have been ignored. Instead of focusing on the attributes of people and their social worlds that confer risk, ideas like recovery and sustainability invite examination of the qualities of the person and his/her social and community environments that confer optimism, hope, purpose, positive and lasting social ties, self and collective efficacy. These are qualities that permit flourishing within dynamic, challenging even threatening environments that characterize rapidly changing metropolitan areas.

In parallel fashion, the quality of life within a community is often defined by the absence of crime, safe streets, convenience to stores selling everyday commodities, and a relatively unfettered path from home to work, and back again. People need the structure of a coherently organized physical environment that affords them basic goods. They want to live within communities that support their needs for social connection and psychological growth. Resilient community structures build on peoples' hopes as well as provide a means of circling the wagons to provide a "defensible space." We need definitions that go beyond the absence of problems: not just risk, but also capacity, thoughtfulness, planning, and a forward-leaning orientation including attainable goals and a realistic vision for the community as a whole.

Boothroyd and Eberle (1990) defined a healthy community: as one in which all organizations, large and small, formal and informal, work together successfully to enhance the quality of life of all its members. The authors agree. From the resilience perspective, health refers to not simply the attending to levels of illness, pain, and psychological disturbance, but also a social accounting of balance of opportunities for an enrichment in work, family and civic life, the qualities that sustain well-being for individuals and build vibrant communities that can sustain healthy lifestyles for generations.

A Community Resilience Index (CRI)

By taking the broad view of human and community health, and focusing on qualities that promote resilience, the task of identifying yardsticks for community resilience is made a challenging one. However daunting the complexities that underlie that effort, to attempt anything less would be to shortchange the communities studiesd, and diminish the chances of preserving the local resources that provide for sustainable growth and development.

One temptation is to embrace the conceptual foundations outlined thus far, but stop short of completing the difficult work of operationalization. In so doing, one only "talks the talk," leaving behind the legacy of an academic exercise, or, worse yet, a framework so open to interpretation, that all efforts, or lack there of, are justifiable. Community indicators integrated into an index of resilience provide a means of making tangible progress toward shared goals, yielding critical feedback on the success of our efforts. Efforts at strengthening community can then be evaluated in terms of resilient processes and outcomes, providing information about what works and what programs need to be reexamined in light of the data.

Advancing beyond existing methodologies. Indicator development to date has laid substantial groundwork from which to begin to build a Community Resilience Index. However, there are several opportunities to improve on existing indicators and to further the thinkin, measurement and analysis of community resilience. Thus far, indicators have largely relied on descriptive statistics without a guiding theory. Also, the social issues that the indicators aim to address remain vague and ambiguous. For example, the health of constituents may be boiled down to the number of hospital visits and infant mortality rates. This type of data serves as a crude estimate and tells little about the physical functioning of individuals. In turn, such information has little impact on the community receiving such information and how it should inform their daily behaviors and understanding of community health.

Resilience theory provides a framework to enhance existing indicators, which have tended to take a singular approach to measurement. That is, most have examined what it takes to constitute a healthy or an unhealthy community without attention to the underlying structure that defines the two constructs. A bi-dimensional framework of resilience suggests that resilience factors are not simply qualities found at the positive end of a single continuum of risk. Models that contain at least two separate dimensions, one that estimates vulnerabilities, and another, strengths (Zautra, 2003) together confer unique advantages in the prediction of health not accounted for by one-dimensional assessments of relative risk.

When examining individuals, this two-dimensional approach is superior because it more accurately represents the complexity of human motivations. At the core of human striving lie two fundamentally different motivational processes: The need to protect and defend against harm, and the need to move forward, and to extend one's reach toward positive aims (Bernston, Caccioppo, & Gardner, 1999). These processes infuse a two-dimensional meaning structure to emotion, cognition, and behavioral intention (Canli et al., 2001; Reich & Zautra, 1991; Sutton & Davidson, 1997; Watson, Wiese, Vaidya, & Tellegen, 1999). Social relations have similar bifurcated structures (Finch, Okun, Barrera, Zautra, & Reich, 1989; Stone & Neale, 1982). When investigators have constructed separate indices of positive and negative aspects of the person and/or social relations, they have uncovered surprising currency for positive aspects in prediction of health and illness unaccounted for in measures taken of negative affective dimensions (Cohen, Doyle, Turner, Alper, & Skoner, 2003; Moskowitz, 2003; Russek & Schwartz, 1997; Seeman et al., 1995).

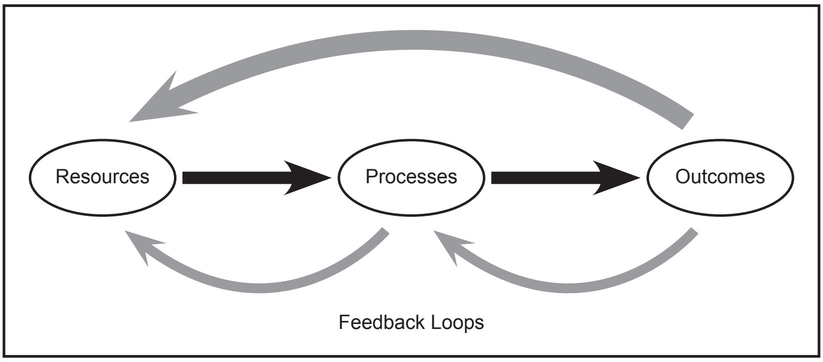
This two-factor approach makes obvious the point that the absence of negative experiences does not *pari passu* imply the presence of positive ones. Conversely, the absence of positive experiences does not necessarily imply the presence of negative ones. Proceeding without an awareness of the distinct quality and meaning of positive versus negative aspects of mental health and social relations, however, leads to shortsightedness in the selection of measures and the construction of predictive indices of health, resulting in shortfalls in predicting differences between groups in health and wellbeing. Further, the confusion that comes from mixing together disparate (and unrelated) indicators leads to lack of specificity in identifying active ingredients of the processes (social, cultural, interpersonal and physiological) that could direct the design of preventive interventions, and build theory (Castro, Cota, & Vega, 1999; Steptoe & Marmot, 2003). Communities are complex, and capturing their assets as well as their liabilities extends the two-dimensional approach of resilience properly to identification of indicators to chart progress toward greater health and well-being at the level of community.

Another limitation to existing indicator selection has been the very practical constraints of data availability and the cost of new data acquisition. At first glance, there seem to be fountains of information from various public, nonprofit and private organizations, state local and national, so much information that many sound alarms about information overload. But not all information from the vast fields of websites and official reports is uniformly available for all communities. It is often possible to augment existing data with new research to provide the best set of indicators for a particular community. Indeed, when community members are brought together to talk about the best measures of progress for their neighborhood, town, region, they are likely to suggest new measures that require individual data collection through surveys, focus groups, and other approaches. This is all well and good as a community involvement and planning process, but also expensive.

There are many different types of communities and the definitions used in indicators remain varied and vague. Communities have complex and dynamic features that the statistical measures and research questions are only beginning to appreciate. Sophistication in design and methods of inquiry in addition to good theory is essential for understanding them. Issues of how to define a community, measure its direct and indirect effects, and tease apart the relative importance of individual, family, and community level factors are only beginning to be addressed. Advances in research over the last ten years have begun to identify the impacts of neighborhood characteristics on individual health and well-being (Folland, 2007). These improvements in community research provide methodologies to successfully move social indicators beyond an era of descriptive statistics to making and testing predictions regarding what constitutes a resilient community.

Distinguishing processes and outcomes. The articulation of a conceptual framework for community resilience requires attention to processes as well as outcomes. The final test of resilient outcomes comes when the community faces a formidable challenge. The assessment of progress toward resilience requires attention to those intermediary processes that increase the likelihood of resilience. Black and Hughes (2001) provide the diagram shown in Figure 1 of the relationship among key sets of variables. Resources such as human and financial capital provide the raw materials for healthy communities. These and other factors influence the development of resilient processes, such as social capital and collective efficacy. Those processes lead to resilient communities. The model has feedback as well. Communities that demonstrate resilience further develop their capacities for resilience.

Figure 1. Diagram of Analytical Framework of Community Resilience (from Black & Hughes, 2001, p. 33)



Time is of the essence. Cities are vibrant and dynamic and the measures used to capture them should be able to capture the breath and movement of a city. Different histories, cultures, experiences, plans and contexts are what differentiate communities. A resilient community is one that examines the long-term changes within the society, warding off ill outcomes before they arrive and enhancing quality of life over previous generations. Longitudinal research is an essential component of any community indicator product. The positive impact of programming and developments may not be seen in a matter of weeks, or certainly not in a one time snapshot of life in a community.

Longitudinal analyses provide the opportunity to begin to understand causal processes which can not be assessed in cross-sectional data. That is, it can help to decipher the programming that is facilitating positive change and that which is not. Statistical analyses are rapidly evolving and the opportunities to use longitudinal growth and dynamic systems modeling are improving by the day. Although many indicators have been consistently collected over time, there has been minimal examination of growth and trajectories within those data sets. In addition, little is known about models of change within communities.

Developing CRI's. An accurate depiction of community resilience requires a mix of strategies. First, a social accounting would rely on existing indicators with which to map and monitor trends in community resourcefulness and potential vulnerabilities. These indicators, if carefully chosen, may be used to capture resilient outcomes of communities following unplanned events that challenge its adaptive capacity. For example, the proportion of residents with four or more years of higher education provides one indicator of work force flexibility in the event of an economic crisis. Second, a direct appraisal of key elements of resilience processes is needed to assess key dimensions of resourcefulness not detected with existing methods, and to capture emergent strengths that do not yet register on global outcome indices of social and economic progress. The extent of resident knowledge of and participation in community forums and other means of active engagement in collective decisions that affect their lives provides information about the degree of social connection and resident commitment to furthering the quality of life in their communities. Third, the social ecology of sustainability and recovery cannot be ignored. Along with measures of job growth and household income, for example, budgets for family time, and impacts of income disparity on community civility must be assessed.

To illustrate, consider the following list of attributes of resilient processes for communities of location reproduced in Table 3. These are key elements of community resilience theory that should be monitored for degrees of change in communities that aspire to develop greater resilience capacity.

Table 3. Fundamentals of neighborhood resilience

Resilient Communities…
1. have neighbors that trust one another. (Kawachi, Kennedy, & Glass, 1999; Kawachi, Kennedy, & Glass, 2005; Sampson, Raudenbush, & Earls, 1997; Subramanian, Kim, & Kawachi, 2002)
2. have neighbors that interact on a regular basis. (Berkman & Syme, 1979; Bolland & McCallum, 2002; Unger & Wandersman, 1985)
3. have residents who own their houses and stay for awhile. (Bures, 2003; Galster, 1998; Temkin & Rohe, 1998)
4. have residents who have a sense of community and cohesion. (Brodsky, O'Campo, & Aronson, 1999; Chavis & Wandersman, 1990; Cutrona, Russell, Hessling, Brown, & Murry, 2000; Farrell, Aubry, & Coulombe, 2004; Sarason, 1974)
5. have residents who work together for the common good and are involved in community events and affairs. (Duncan, Duncan, Okut, Strycker, & Hix-Small, 2003; Hyyppa & Maki, 2003; Perkins, Florin, Rich, Wandersman, & Chavis, 1990; Price & Behrens, 2003; Sampson et al., 1997)
6. have formal and informal civic places for gathering. (Oldenburg, 1991; Sharkova & Sanchez, 1999)

There are indicators that are routinely collected which may "stand in" as valid indicators for many of the qualities of community life depicted here, but not all of them. The measurement of "trust', for example, is a critical dimension that requires direct assessment. Household surveys have been used for this purpose, and are the best methodology currently available. The cost of this method is prohibitive although the innovative use of web-based technologies may make large samples for citizen interviews affordable in the near future. The authors of this study advocate a complimentary, at times, alternative approach to acquiring information about community reliance. Citizen panels, constituted by leaders and other concerned citizens who are members of the communities studied could be developed to identify unique characteristics of their constituent areas that deserve close attention. These citizen panels can fill the gaps left by social accounting and address directly problems and prospects for community resilience. With care in selection of the citizen panel to assure it is representative of those most informed and concerned, the group may be enjoined to meet periodically to review the status of their communities, follow a well facilitated, carefully designed uniform framework for analysis, suggest new and better indicators of progress, and provide early warning to downturns in quality of life that is likely to leave their communities less resilient in the future.

In their discussions with our Resilience Solutions Group about community resilience indicators for the Phoenix project, community leaders frequently emphasized the need to make qualitative assessments of many descriptive measures that appear frequently in community indicator projects. Beyond public park acreage for example, they have asked for ways to measure the trend in development of safe and useable parks. They raised questions like, “What is the quality of organization (or social) contributions to neighborhood development?” and “How well and how frequently are organizations collaborating?” These and many other good qualifications were suggested to add shape and meaning to suggested indicators. Citizen Panels could focus on these and many other qualitative issues associated with determining direction and pace of community resilience processes and outcomes.

Conclusion

In sum, if the goal is to uncover indicators of resilient communities, the challenges of measuring change are readily apparent. A city that plans and is future-oriented, connected, not segmented, and focuses resources as well as risk factors bucks the current and long-standing trends. However, considerable effort is needed to generate such dramatic shift in attention to community resourcefulness. Despite these challenges, there are reasons to believe that critical steps can be taken to move to more resilient governance with substantial and sustainable gains in community well-being as a result. A “tipping point” in which the benefits outweigh the investment costs is required. To reach this critical point in community development requires resourceful people with keen insights and strong leadership skills, coupled with accurate data that can persuade the skeptics and reassure supporters that the path they have chosen is the correct one. An effective model depends on good data, high quality feedback, leadership willing to listen and act, and a citizenry that is informed and involved. The resilience model is no different in this regard. Resilience fundamentals applied through civic engagements that further “learning governance” provide a path to community development that strengthens prospects for a sustainable future for all.

Notes

1 In 1984, the World Health Organization (WHO) first extended the concept of health from the individual level to both of the individual and group level. It says: “Health is defined as the extent to which an individual or group is able, on one hand, to realize aspirations and satisfy needs; and, one the other hand, to change or cope with the environment. Health is, therefore, seen as a resource for everyday life, a dimension of our ‘quality of life,’ and not the object of living; it is a positive concept emphasizing social and personal resources, as well as physical capabilities” (cited in Boothroyd and Eberle, 2000, p. 3).

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